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ABSTRACT

The first chapter of this book makes a case for preparing teachers to be lifelong students of teaching. Impediments to that goal are enumerated, and suggestions are made on how they might be overcome. Some of the means by which teachers can be made more reflective about their teaching are presented. In chapter 2, teachers are encouraged to become career-long students of teaching. A discussion is presented on the teaching of a reflective teaching lesson (RTL) by each member of a group of teachers or student teachers. Chapter 3 deals with ways in which performance in reflective teaching can be evaluated. Chapter 4 points out the major benefits of reflective thinking. In chapter 5, ways that reflective teaching is being used to enhance preservice and inservice teacher education are discussed as well as potential uses of RTLs that exist in student admission to teacher education, graduation or certification, hiring of teachers, and the preparation of university teachers. The final chapter considers the possibility of conducting research on reflective teaching as an instructional alternative in preservice and inservice education. Resource materials and sample reflective teaching lessons are appended. (JD)

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REFLECTIVE TEACHING

The Preparation of Students of Teaching

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Reflective Teaching

The Preparation of Students of Teaching

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Reston, Virginia

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Foreword

The call for better education in our schools now seems almost universal in the United States. It comes from business people, government decision makers (both politicians and civil servants), and educators. The central element of quality in education is, of course, the teacher. Knowledgeable teachers are the core of an effective school program. Efforts are under way in most states to improve the preservice and inservice education of teachers to ensure greater competence in both knowledge of subject matter and techniques of teaching.

As yet, little attention has been given to developing the teacher's reflective capacity. Nurturing thoughtful, insightful teachers should be next on the teacher education agenda. Truly professional teachers *are* thoughtful and reflective. They know how to create a learning climate and an appropriate arrangement of curriculum for each learner. Unfortunately, to date, such teachers have had to acquire these skills on their own.

In *Reflective Teaching*, Donald Cruickshank shows clearly and persuasively how teacher education at all levels can help teachers reflect on and analyze their performance. The Association of Teacher Educators is indebted to Dr. Cruickshank for his contribution and support and is pleased to publish this monograph under its imprimatur.

Robert J. Stevenson
Executive Director

The Need to Prepare Students of Teaching

Question: What is more important to the beginning teacher than being readied for the first year of teaching?

Answer: Being readied for all the years that follow.

Although the most visible intention of preservice education, and a laudable one, is to prepare teachers for initial practice (Howsam, Corrigan, Denemark, & Nash, 1976; Scannell et al., 1983), the major goal should be to graduate novices disposed to becoming lifelong students of teaching.[1] In the understandable pursuit of teacher survival in the first year, it is easy to overlook this larger goal.

Teachers prepared mainly for initial practice may be able to cope sufficiently with life as a beginning teacher, but they may not prosper over time because they have not developed higher-level thinking skills with regard to their teaching. Such teachers may be adequate or even good in the immediate situation, but not wise: good in that they are technically able—that is, they can write behavioral objectives, organize teaching

[1]Dewey (1904) was among the first to debate this issue. He wrote that it is more important to make teachers "thoughtful and alert students of education than it is to help them get immediate proficiency" (p. 15).

episodes, frame higher-order questions, use instructional technology, and apply principles of operant conditioning—but unwise in that they understand neither why they are doing what they are doing nor when suitably to employ technical skills. It is possible, in fact, that teachers prepared solely for beginning practice merely repeat the first-year experience year after year. That is a real danger.

Teachers prepared to be career-long students of teaching can be good technically and have the capacity to become wise. They can have all the requisite abilities for beginning practice and, beyond that, the propensity to improve, not just to endure.[2]

What Is a Student of Teaching?

Students of teaching have a high and continuing interest in the subtleties of the art and science of teaching. Specifically they want to learn all they can about teaching from both theory and practice. They reverberate to writing and research on teaching such as Highet's *Art of Teaching* (1950), Barzun's *Teacher in America* (1954), Peterson's *Great Teachers* (1946), Flournoy et al.'s *New Teachers* (1972), Dunkin and Biddle's *Study of Teaching* (1974), Peterson and Walberg's *Research on Teaching* (1979), and the American Educational Research Association's *Handbooks of Research on Teaching* (Gage, 1963; Travers, 1976; Wittrock, 1985). Perhaps more important, they teach and reflect on their teaching.
In sum, then, students of teaching think deeply about the theory and the practice of teaching.

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[2]For a fuller development of how teachers might become more wise, see Cruickshank (1986).

They reflect on teaching itself and become, in practice, thoughtful and wiser teachers. Rather than behaving according to technique, impulse, tradition, and authority, they deliberate on their teaching.

What Is Reflection? How Might It Be Used to Dispose Preservice or Inservice Teachers to Become Students of Teaching?

Literally, to reflect is to think. However, reflection is more than merely bringing something to mind. Once one brings something to mind, one must consider it. Teaching can be thought about and considered by means of meditation, musing, contemplation, pondering, deliberation, cogitation, reasoning, and speculation.

Valverde (1982) provided an operational definition of reflection:

> The [teacher] must examine his or her situation, behavior, practices, effectiveness, and accomplishments. Reflection means asking basic questions of oneself. The basic and comprehensive question during reflection is, What am I doing and why? Reflection is a form of slightly distorted self-evaluation—distorted in the sense that judgment is emphasized rather than data collection. The individual asks value-laden questions and responds on stored selected data (memory) and then concludes whether he or she is satisfied or dissatisfied. Reflection, then, is an individual's needs assessment and continued self-monitoring or satisfaction with effectiveness. As with any type of evaluation, reflection should be

> formative, that is, periodic, constructive and deliberate. (p. 86)

Dewey (1933) defined *reflective thinking*, a near relative, as "active, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends" (p. 9).

Valverde used *reflection* to mean bringing to mind, considering "situation, behavior, practices, effectiveness, and accomplishments." Dewey used *reflective thinking* to mean bringing to mind and considering beliefs and knowledge about teaching.

What Are Some Impediments to Preparing Students of Teaching?

Some obstacles to preparing students of teaching are apparent. Others are more subtle. Among the obvious ones at the preservice level are (a) the need for education units and students to accept preparing lifelong students of teaching as a goal, (b) the need for education units to recognize that there are means to achieve that goal and that reflection on teaching is one of them, (c) the need for teacher educators to become knowledgeable about and skilled in modes of instruction that promote the study of teaching, (d) the need for preservice teachers to accept modes of instruction that promote the study of teaching, and (e) the need for both education units and preservice teachers to recognize that becoming a student of teaching involves a commitment over time.

How Can Some of the Impediments to Preparing Students of Teaching Be Overcome?

Several competing beliefs and practices need to be altered for education units to accept developing students of teaching as their goal. One such belief, mentioned at the outset, is that

- *The primary goal of preservice education is to prepare novices for initial practice and mere survival.*

As important as that goal may be, long-term teacher development is more so, and a disposition toward such development on the part of future teachers should be encouraged early and continuously. A second competing belief is that

- *Teachers learn to teach best through apprenticeship-like experiences.*

This, consciously and unconsciously, encourages the novice to model the master teacher. Studying teaching then becomes much less important than "correct" performance based on some local standard (Broudy, 1978). A third belief is that

- *Wise teachers may not be better teachers.*

Perhaps wise teachers, like Cassius, think too much.

For education units to recognize that preparing students of teaching is attainable, another set of beliefs must be diminished. Among such notions are that—

- *Teacher wisdom cannot easily be engendered.*
- *Novices are not capable of understanding the subtleties and nuances of performance.*
- *Teachers are merely interested in "getting through the day," and it is simpler and less*

time-consuming to teach them straightforward and operationally definable "things"—primarily techniques and procedures—than to teach them how to think about teaching.

- *No processes are available that can be employed to nurture students of teaching.*

For teacher educators to become knowledgeable and skilled in modes of instruction that promote the study of teaching, they need to be relieved of such beliefs as—

- *There are no opportunities to learn about and become skilled in processes for helping preservice teachers come to study teaching.*
- *You cannot teach old pedagogues new tricks.*

For preservice students to accept modes of instruction supporting the study of teaching, they first need to shed such notions as—

- *Practice makes perfect.*
- *The complexity and fast pace of life in classrooms demand impulsive, intuitive behavior.*
- *Consideration of teaching is only for scholars.*

Finally, for education units and preservice teachers to recognize that becoming a student of teaching takes time, both need to dispel the idea that—

- *Sufficient time is not available to dispose novices to become students of teaching.*

These are just a few of the existing beliefs that inhibit movement toward preparing students of teaching and that require attention.

When Might Teachers Be Encouraged to Be Reflective?

Whenever and wherever teaching is a subject of conversation or can be made so, an opportunity exists to foster thinking about it. Valid situations that can be used are ubiquitous, in both school classrooms and contrived settings. For the preservice teacher, they include off-campus or field situations such as early experience programs, part-time classroom observation and participation, student teaching, and on-campus courses in foundations of education, educational psychology, and teaching methods. In fact, numerous opportunities to talk about and practice teaching can readily be converted to the examination of teaching and the nurturance of reflective teachers. Ensuring that reflection on teaching begins early in preservice preparation, is nurtured throughout its duration, and is supported in school settings is of primary importance. As Feiman-Nemser and Buchmann (1983) noted, school districts should enable and encourage teachers to study teaching practice together and be rewarded for doing so.

How Might Teachers Be Encouraged to Be Reflective?

Dewey (1916) suggested that good habits of thought (whose use leads to one's becoming a thoughtful student of teaching) are best engendered by providing situations that initiate and provoke reflection. The situations, in the present case, should be those lived by teachers. Teachers can experience the situations, real or contrived, and can then be encouraged to give those situations careful, thoughtful consideration with an eye to increasing their understanding of

the phenomenon of teaching and themselves as teachers. Rather than behaving purely according to impulse, tradition, and authority, teachers can be reflective—they can deliberate on their actions with openmindedness, wholeheartedness, and intellectual responsibility, always with the goal of "directing [their] actions with foresight and [planning] according to ends in view or purposes of which [they] are aware . . . [Reflection] enables us to know what we are about when we act" (Dewey, 1933, p. 17).

Holton (1984) noted,

> Faced with the particulars of a teaching experience, the student of teaching is asked to draw conclusions . . . what happened in general? Did learning take place? What happened to promote learning? What happened that got in the way of learning? What did the pupils actually learn? What might they have learned? What other ways might the material have been taught? What is the role of the teacher? (p. 8)

In the sense mentioned earlier, such questions should incline teachers to contemplate, reason, speculate, and deliberate. Thus, teacher educators can dispose teachers to be students of teaching, and hence wiser, by engaging them in teaching experiences and then providing an opportunity for them to bring the teaching to mind thoughtfully and analytically.

Developmental theorists in teacher education have noted that although teaching experiences are ubiquitous, there must be a better balance between merely providing them and making available an opportunity to reflect on them. The theorists have concluded that providing more

teaching experience is not necessarily better. For example, Sprinthall (1980) commented,

> In addition to "real" experience [role taking] there is a need for careful and continuous guided reflection. In a Dewey sense this means that unexamined experience misses the point . . . The general education enterprise rarely teaches anyone how to reflect on real experience . . . Teaching persons how to ask questions, examine experience from a variety of views, etc., is at least co-equal to real experience as a growth stimulus. Naturally there are always some in each group, who for whatever reason, are reflective; yet for the majority, structured learning seems requisite to promote rigorous examination. (p. 288)

If one accepts that reflection on teaching is indeed critical, then the search for instructional alternatives to promote reflection must follow.

What Instructional Alternatives Are Available for Use in Teacher Education That, in Addition to Providing Teaching Experience, Promote Reflection on Teaching?

Any experience that, first, engages preservice or inservice teachers with reality (or a model of reality) and, second, causes them to reflect on what happened—that is, bring it to mind for consideration—qualifies as a potential reflective teaching experience. Instructional alternatives available for such use include journals, systems for analyzing classroom events, simulations, protocol materials, and reflective teaching. In each of these alternatives, the intention is to make teachers more thoughtful and wiser by encouraging them to examine and give careful consideration to teaching.

Journals. Janesick (1983) has explained how and why a teacher might benefit from keeping a journal and reflecting on its contents. She defined a journal as a record of the teacher's experiences within and outside the classroom that bear directly on classroom life. "The journal may be a record of thoughts, actions, beliefs, and attitudes" (p. 2). Reacting to a caution from psychotherapy that journal writing may do more harm than good because it can reinforce negative aspects of life, she suggested that teacher journals consist of two parts, "positive elements in the classroom" and "frustrating elements in the classroom."

According to Janesick,

> The keeping of a classroom journal forces the teacher to assume a posture of reflection. The teacher sees in writing descriptions of and reactions to everyday life in classrooms . . . The teacher records feelings and thoughts as well. The journal becomes a self-monitoring outlet and may become a vehicle for redirection and change, if that is warranted. (p. 8)

Systems for analyzing classroom events. During the 1960s and 1970s numerous systems were designed to record and analyze classroom events. Unlike journals, in which teachers record almost anything and everything, such systems require the recorder to focus on only one or a few aspects of what is occurring. Of particular interest here are the systems that enable teachers to make a record of their teaching and that consequently provide a potential opportunity for reflection on it.

The most popular system is Flanders' Interaction Categories (FIAC) (Flanders, 1970). The Flanders

system provides a means for classroom teachers to obtain a record of how they use verbal influence in the classroom. The record is obtained by the teacher's either tape-recording a teaching episode or having a colleague make an on-the-spot record of the teaching. In either case the coded record can be analyzed according to such questions as the following:

1. How much of the time did the teacher talk? How much of the time did the students talk?
2. How much of the time was silence or confusion evident?
3. When the teacher talked, how much of the talk was given to accepting students' feelings, praising or encouraging, accepting or using students' ideas, asking questions, lecturing, giving directions, or criticizing or justifying authority?
4. When the students talked, how much of the time were they responding to teacher-initiated contacts as compared with talk they initiated?

Most important, teachers can reflect on the extent to which their classroom behavior was consonant with their intentions and what their intentions were.

Other systems for recording and analyzing teaching are available in the works of Simon and Boyer (1967, 1969, 1970), Borich and Madden (1977), and Stallings (1977).

Simulations. Simulations attempt to give the appearance or the effect of something else (Cruickshank, 1977). In teacher education they commonly ask preservice or inservice teachers to take the role of a teacher. For example, participants in the *Inner-City Simulation Laboratory* (Cruickshank, 1969) take the role of a

sixth-grade teacher. They are oriented to a hypothetical city, community, and school in which they work. They receive data on community agencies, cumulative record folders for their students, and a faculty handbook of school rules and regulations. Following an indeterminate period of study and reaction to the context and the materials, participants confront a series of complex classroom problems. The problems are presented using films, role plays, playlets, written incidents, and combinations of these. Participants reflect on the situations and try to resolve the problems. The process includes individual problem analysis followed by group discussion in which participants are asked by other group members to reflect on their proposed solution.

Other simulations available for use in teacher education are described by Cruickshank (1971).

Protocols. A protocol is a record of an event or a phenomenon of educational significance to be viewed by preservice or inservice teachers and then thought about and illuminated using related theory from education or the social or behavioral sciences (Smith, Cohen, & Pearl, 1969). For example, teachers might view a videotape on cheating in the classroom. Following that, they would give careful consideration to the phenomenon of cheating and the accompanying teacher behavior, and determine from the literature what is known about the antecedents and consequences of cheating behavior that would make them wiser when they next encounter it.

Reflective teaching. Reflective teaching (Cruickshank et al., 1981) is the most recent instructional alternative that engages preservice

and inservice teachers with teaching and causes them to bring it to mind for consideration. The concept is fully described in Chapter 2.

In summary, a case has been made for preparing teachers to be lifelong students of teaching. Impediments to that goal have been enumerated, and brief attention has been given to how they might be overcome. Further, some of the means by which teachers can be made more thoughtful and wiser about their teaching have been presented.

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2 *Reflective Teaching as a Useful Alternative in Preparing Students of Teaching*

We must find ways of stimulating public school teachers . . . to think about what they are doing and why they are doing it. (Silberman, 1971, p. 380)

What Is Reflective Teaching Like?

Reflective teaching, according to Tom (1985), belongs to one of the four teacher education paradigms formulated by Zeichner (1983). The paradigm, called inquiry-oriented, holds that teachers should develop habits of inquiry: They should be self-monitoring, reflective, adaptive, experimenters, action researchers, problem solvers, hypothesis makers, and clinical inquirers.

Preservice and inservice teachers who learn reflective teaching acquire a simple yet powerful way to consider their teaching carefully and hence to become more thoughtful and alert students of teaching. Reflective teaching has been developed and field-tested at The Ohio State University and is being disseminated by that institution. Support for this work has come from the Exxon Education Foundation, the George C. Gund Foundation, and Phi Delta Kappa.

Operationally, reflective teaching (a 60-75 minute exercise) occurs as follows:

1. A class of preservice teachers or a group of inservice teachers is divided into groups of four to six members.
2. One participant in each group is chosen to be the "designated teacher." The remaining group members are the learners.
3. All of the designated teachers are provided with a common reflective teaching lesson (RTL) to teach to one of the groups at a future time. They are told that the lesson may be taught in any way; however, the outcomes measured will be learner achievement and satisfaction. Figures 1-6 present the components of The Clear Teacher Task, one of many RTLs available. RTLs are a means to an end, never an end in themselves. They must meet five criteria: (a) They must be somewhat interesting to teach and to learn; (b) their content must be unique and not normally a part of a preservice or inservice program; (c) they must be teachable in 15 minutes or less; (d) the teaching must result in observable, measurable outcomes in the cognitive, psychomotor, or affective domain; and (e) they must be self-contained; that is, they must include all of the information necessary for instruction.
4. The designated teachers take the RTL and prepare to teach it in a way that will maximize learner achievement and satisfaction.
5. On the appointed day, the designated teachers set up their teaching stations in various parts of the room or in an easily accessible, adjoining area. The stations usually contain a table and chairs, and a chalkboard, chart paper, or an overhead projector, depending on the designated teachers' wishes.
6. One group of learners goes to each teaching

station.

7. On a common signal, teaching begins, and it continues for 10-15 minutes, depending on the RTL.
8. At the conclusion of the time assigned, the designated teachers stop teaching and distribute a posttest. Some RTL posttests are of the paper-and-pencil variety as in Figure 2; others require learners to perform an operation, such as folding a piece of paper to form a butterfly (see the Origami Task in Appendix B).
9. The designated teachers allow 3-5 minutes for learners to complete the test. Then they collect it for scoring and record each learner's score in a scoring box (see, for example, Figure 3).
10. As they collect the posttest, they distribute a Learner Satisfaction Form (see Figure 4). While the designated teachers score the posttest, the learners complete a written analysis of their satisfaction with the lesson.
11. After another 3-5 minutes, the designated teachers and the learners exchange scored tests and completed Learner Satisfaction Forms.
12. The designated teachers, using Suggested Questions for Use in Small Group Discussions (see Figure 5), engage the group in considering the shared teaching and learning experience. The questions are designed to raise learners' level of thinking about teaching and learning.
13. After 15 minutes all groups convene as a large group, and the instructor leads a discussion using Suggested Questions for Use in Large Group Discussion (see Figure 6). The questions for use in both the small and the large group discussions are intended to engage the participants in what Schoen (1983)

called "reflection-on-action." Trumbull (1986) noted, "Reflection-on-action occurs when the practitioner has left the arena of endeavor [teaching] and imaginatively reconstructs that arena to reexamine actions and results" (p. 141).

14. Near the conclusion of the time set aside for the session, new designated teachers are chosen so that the cycle can continue until each participant has been a designated teacher at least once.

The reflective teaching cycle essentially consists of planning, teaching, testing, and reflecting.

A 28-minute semidocumentary film that shows reflective teaching in use is described in Appendix A. A list of 36 RTLs contained in *Reflective Teaching: Instructor's Manual* (Cruickshank et al., 1981) also appears in Appendix A. Three of them are reproduced in Appendix B.

What Are the Roles of Participants?

Instructors (college teachers or inservice leaders). The instructors engage the designated teachers and the learners in reflective teaching and maximize the learning that can take place. Their responsibilities are as follows:

1. Orienting the designated teachers and the learners to reflective teaching, using (if they wish) *Reflective Teaching: Participant's Guide* (Cruickshank et al., 1981) and the film described in Appendix A
2. Deciding how much reflective teaching is desirable
3. Selecting the reflective teaching lessons (RTLs) that seem to be most provocative and

promise to generate higher-level thinking about teaching and learning
4. Dividing the participants into small groups
5. Identifying designated teachers and distributing the RTLs and appropriate support material to them
6. Arranging for teaching stations and providing the RTL posttests and the Learner Satisfaction Forms
7. Giving a starting signal, monitoring the teaching and learning, and providing a five-minute warning before the end of the RTL
8. Starting and monitoring the completion of the posttest and the Learner Satisfaction Form and ensuring that those tasks are done, that the learners provide maximum feedback to the designated teachers, and that the transition is made from teaching and learning to reflection
9. Starting and monitoring small-group reflective sessions and ensuring that the designated teachers and the learners are on task, discussing Suggested Questions for Use in Small Group Discussions or otherwise giving thoughtful consideration to teaching and learning
10. Commencing and guiding the large-group reflective session and ensuring that careful attention is given to Suggested Questions for Use in Large Group Discussion or, more generally, that teacher wisdom is being encouraged as described in Chapter 3
11. Preparing the group for the next round of reflective teaching.

Designated teachers. The role of the designated teachers is to teach and to improve through reflection on the teaching. Specifically their

responsibilities are these:

1. Studying their assigned RTL with an eye toward maximizing both learner achievement and learner satisfaction
2. Determining a teaching methodology
3. Preparing or obtaining the needed instructional materials and resources
4. Obtaining equipment if needed
5. Setting up the teaching station
6. Teaching the RTL within the period provided
7. Testing learners and obtaining Learner Satisfaction Form data within the period provided
8. Evaluating learning and satisfaction
9. Reflecting with their group on the teaching, learning, and outcomes using the Suggested Questions for Use in Small Group Discussions, tests, and Learner Satisfaction Forms
10. Most important, trying to learn from the experience.

Learners. The role of the learners is to give the designated teachers an opportunity to teach, but also to cause them to think deeply about the processes of teaching and learning. The learners have these responsibilities:

1. Behaving like themselves—avoiding role playing
2. Providing substantive feedback to the designated teachers on the Learner Satisfaction Form
3. Interacting honestly with the designated teachers and group members during the small-group reflective session
4. Doing the same in the large group discussion
5. Keeping a written diary of what they learn during reflective teaching that they can put to

use when they become designated teachers.

In summary, reflective teaching is a process through which preservice and inservice teachers are encouraged to become career-long students of teaching. They do so by engaging in teaching and learning that causes them to think deeply about the experience and calls on them to produce insights and wisdom that will guide their practice.

Figure 1. A Reflective Teaching Lesson in the Cognitive Domain: The Task

The Clear Teacher Task

Read each section carefully.

Description of your reflective teaching task. You are one of several participants chosen to teach this brief lesson to a small group of your peers. The exercise is intended to provide an opportunity for you to experience teaching and then to reflect on the shared teaching-learning experience. Plan to teach the lesson in such a way that you believe both learning and satisfaction will result.

Your lesson will be taught on _____.

Introduction to the lesson. Teachers sometimes *designate* and *describe*—that is, they denote things directly and specifically for learners, and they may tell something of the characteristics or qualities of the things denoted. The following are examples of teachers designating and describing behavior:

1. An elementary teacher designates the planets in the solar system and describes the topographic and atmospheric conditions of each.
2. A social studies teacher designates the various routes taken by fugitive slaves in their flight to freedom using the Underground Railroad and then describes the perils each route seemed to hold.
3. A music teacher designates the notes of a chord and describes how they are to be played.

Below is an objective that requires you to designate items to a small group of your peers and then to elaborate on or describe them. The task was selected because your success in accomplishing it probably will not depend on your knowledge of some academic subject or on previous experience you may have had.

Your objective. Your goal is to get as many of your learners as possible to list the behaviors that discriminate best between teachers who are clear and those who are not. You will have a maximum of 15 minutes to accomplish that goal.

Materials

1. Behaviors That Discriminate Clear from Unclear Teachers (below)
2. Test [Figure 2]
3. Scoring Box [Figure 3]
4. Learner Satisfaction Form [Figure 4]

Behaviors that discriminate clear from unclear teachers. According to a series of studies conducted at The Ohio State University, teacher behaviors that comprise clear teaching are numerous but identifiable. If it is necessary or desirable for teachers to be clear, then teachers must know those behaviors and use them in practice. Although there seem to be about 30 in all, some of the behaviors best discriminate between teachers whose pupils say they are clear and teachers whose pupils say they are unclear. The most discriminating behaviors are as follows:

1. Teaches at a pace appropriate to the topic and to us
2. Teaches step-by-step
3. Explains things simply, that is, gives explanations we understand
4. Tries to find out if we don't understand
5. Stays with the topic until we understand
6. Repeats things we don't understand
7. Describes work to be done and how to do it
8. Asks if we know what to do and how to do it
9. Explains things, then shows an example.

Special conditions and limitations: None.

Ending the lesson. When the instructor notifies you that time is up or when your learners are ready to take the test (you may finish in less than 15 minutes), give the learners the test. When the learners have finished the test (no more than three to five minutes), read them the correct answers so that they can score their own tests, or collect and correct the tests yourself if you like. Enter the learners' individual test scores in the Scoring Box.

Next, pass out the Learner Satisfaction Forms, and encourage learners to maximize the feedback they provide you.

Return the tests if they were collected, collect the Learner Satisfaction Forms, and, armed with knowledge of learner achievement and satisfaction, address the Suggested Questions for Use in Small Group Discussions.

Figure 2. A Reflective Teaching Lesson in the Cognitive Domain: The Posttest

The Clear Teacher Task:
Test

Name _____

List as many behaviors as you can that distinguish clear from unclear teachers.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Figure 3. ***A Reflective Teaching Lesson in the Cognitive Domain: The Scoring Box***

The Clear Teacher Task:
Scoring Box

Directions. Give learners one point for each of the attributes of clear teachers. A perfect score is 9.

Learner's Name	*Learner's Performance Score*
1.	
2.	
3.	
4.	
5.	
6.	
Group average score (Add all performance scores and divide by number of learners.)	

Figure 4. ***A Reflective Teaching Lesson in the Cognitive Domain: The Learner Satisfaction Form***

The Clear Teacher Task:
Learner Satisfaction Form

Name _____

1. During the lesson how satisfied were you as a learner?

   ____ Very satisfied

   ____ Satisfied

   ____ Unsatisfied

   ____ Very unsatisfied

2. Suggest anything and everything that could have been done to increase your satisfaction with the topic, the teaching, or achievement. Be as analytical and critical (in the best sense) as you possibly can. Your responsibility is to make the teacher think deeply about teaching and learning.

Figure 5. A Reflective Teaching Lesson in the Cognitive Domain: Small-Group Discussion Questions

The Clear Teacher Task:
Suggested Questions for Use
in Small Group Discussions

1. What probably most influenced the way this lesson was taught: the content, the learners, the context or setting, the teacher's views of and experiences with teaching, available materials, other? How did these factors probably affect how the lesson was taught?

2. Given the posttest results, to what extent did learners learn?

3. Based upon the comments made on the Learner Satisfaction Forms, to what extent did instruction result in satisfaction?

4. What does the group believe contributed most to achievement and satisfaction?

5. What does the group believe got in the way of achievement and satisfaction?

6. What did you learn or recall about effective teaching and learning? Enumerate at least two insights.

7. How do you feel about the teaching-learning experience?

Figure 6. ***A Reflective Teaching Lesson in the Cognitive Domain: Large-Group Discussion Questions***

The Clear Teacher Task:
Suggested Questions for Use
in Large Group Discussion

1. How did the designated teacher go about teaching the RTL? (Have several designated teachers describe briefly how and why the lesson probably was taught as it was.)
2. How successful was the methodology in bringing about learner achievement and satisfaction?
3. What happened that facilitated learning and satisfaction?
4. What, if anything, got in the way of achievement and satisfaction?
5. What was learned (or rediscovered) about either teaching or learning that may be worth remembering and using?
6. To what extent was the designated teacher satisfied or dissatisfied with the teaching or learning, and why?

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3 *Evaluation of Participation in Reflective Teaching*

To what extent do teaching experiences foster the capacity to learn from future experiences?
(Feiman-Nemser & Buchmann, 1983, Abstract, p. i)

A normal concern of those using reflective teaching is expressed in the question, How can participation in reflective teaching be evaluated? University-based teacher educators are likely to raise this question because preservice teachers have come to expect grades for everything they do. In response, there seem to be two alternatives. The first is to convince participants that no grade is necessary. The second is to determine, make public, and use criteria on which participants will be evaluated. The intent here is to address the latter alternative.

The major criterion to use in evaluating reflective teaching participants is their willingness to become students of teaching: *To what extent do they wish to study and to learn from their teaching experience?* A related criterion is their growth as teachers: *To what extent do they demonstrate the characteristics of thoughtful, wise teachers?*

The first criterion assumes that one is well-advised to become a student of teaching. It is based on premises such as these: The vast majority of teachers probably are not students of teaching, it is possible to become a student of

teaching, and being a student of teaching is desirable. Unfortunately, too many teachers travel through life and classrooms as victims of unexamined experience. They seem prone to repeat their mistakes, mostly because of what Silberman (1971) has called "mindlessness":

> By and large teachers . . . are decent, intelligent, and caring people who try to do their best. If they make a botch of it, and an uncomfortably large number do, it simply never occurs to more than a handful to ask why they are doing what they are doing—to think deeply and seriously about the consequences . . . (p. 11)

In the extreme, some teachers are self-defeating.

Becoming a student of teaching is possible only by studying teaching. Practice is necessary but not sufficient.

Studying anything, in the sense of wondering about it, can make a person more reasoned. Wondering is a way of getting at meaning and truth. It frees or liberates a person from thought and practice that he or she may have accepted unconsciously and erroneously. Of course, a person may find, after wondering about teaching, that his or her current beliefs and practice are laudable. The point is that teachers who study teaching deliberately and become students of teaching can develop life-long assurance that they know what they are doing, why they are doing it, and what will happen as a result of what they do. Foremost, they can learn to behave according to reason. To lack reason is to be a slave to chance, irrationality, self-interest, and superstition.

The extent to which participants in reflective teaching meet the first criterion—that is, being willing to become students of teaching—can be

judged by using the following questions, among others:

1. To what extent do participants give evidence of interest in reflecting carefully on their teaching, as opposed to merely performing as teachers?
2. To what extent do participants deliberate on their teaching with open-mindedness and intellectual responsibility?
3. To what extent do participants give evidence of interest in reflecting with others on their teaching, as opposed to merely serving as unreasoning, uncritical learners?

Evaluations can be made on the basis of observation of participants during reflective sessions and examination of the quantity and the quality of responses on Learner Satisfaction Forms.

The second criterion assumes that students of teaching are more thoughtful and wise and possess certain characteristics that make them so. As indicated, studying and wondering about teaching can only make teachers more reasoned. Such study reduces ignorance and increases wisdom. Insights can be gained about self and teaching and about learners and learning that provide direction for personal and professional growth.

In evaluating the extent to which participants meet the second criterion, the following questions seem reasonable. They define teacher characteristics and behaviors that suggest movement toward increased personal and professional wisdom.

1. Are participants able to ask basic questions of themselves, such as, What am I doing and why?

2. Are they able to identify and subject their beliefs and actions to inspection and consideration?
3. Are they becoming purged of unfounded beliefs about teaching and learning?
4. Are they able to formulate new or revised beliefs about teaching and learning?
5. Are they becoming more aware of the unconscious determinants of teaching behaviors?
6. Are they becoming more aware of the consequences of their beliefs for learners and others, including colleagues and parents?
7. Are they growing in self-understanding?
8. Are they more analytical and less evaluative when they consider their teaching and the teaching of others?
9. Are they able to extract personal meaning from their teaching and learning experiences that gives them further direction?
10. Are they likely to be more able to teach in a way that has maximum benefits for learners and for themselves?
11. Can they apply what they have learned in coursework to practice?
12. Can they project insights about teaching and learning?[3]

Zeichner and Liston (1985) call attention to Van Manen's (1977) conception of "levels of reflectivity," which are useful in gauging participants' insights:

> At the first level (technical rationality), the dominant concern is the efficient and effective

[3]Participants should keep a diary in which they record what they have learned about teaching and learning.

> application of educational knowledge for the purposes of attaining ends accepted as given. At this level, neither the ends nor the institutional contexts of the classroom, school, and community are treated as problematic. A second level of reflectivity . . . is based upon a conception of practical action where the problem is one of explicating and clarifying the assumptions and predispositions underlying practical affairs and in assessing the educational consequences to which an action leads. At this level, every action is seen as linked to particular value commitments, and the actor considers the worth of competing educational goals or ends. The third level (critical rationality) incorporates consideration of moral and ethical criteria into the discourse . . . At this level the central question becomes which educational goals, experiences, and activities lead toward just and equitable forms of life. Here both the teaching (ends and means) and the contexts of the teaching are viewed as problematic. (pp. 158-159)

In summary, performance in reflective teaching can be evaluated for grades if that is desirable. The evaluation should be based on the extent to which the participants are willing to become students of teaching and the extent to which they are becoming more thoughtful and wiser by demonstrating behaviors presumed to be characteristic of students of teaching.

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4 Benefits of Reflective Teaching

Activity not checked by observation and analysis may be enjoyable, but intellectually it usually goes nowhere, neither to greater clarification nor to new ideas and experience. (Chickering, 1977, p. 18)

The major purpose and the benefit of reflective teaching are to help teachers become wiser and to encourage them to become life-long students of teaching. Other benefits accrue from its use, however. It is psychologically engaging, it is an effective form of laboratory experience, and it is economical. A more extensive presentation of benefits is found in Cruickshank (1985) and Cruickshank et al. (1981).

Psychological Engagement

Several factors contribute to the acceptance of reflective teaching by both preservice and inservice teachers. For preservice teachers, who have been students all of their lives, it presents a much-sought-after chance to teach. Prospective teachers give all such opportunities, either in natural classrooms or in on-campus laboratories, high marks. Typical of students' comments about courses in which reflective teaching has been used are these:

> Reflective teaching was probably the most beneficial experience I was provided during the course.

> The reflective teaching experience was one that was particularly important. Through teaching these lessons we had a taste of what teaching would be like.

Teacher educators also report high acceptance by prospective teachers. A faculty member at Pennsylvania State University related, "The course and the reflective teaching materials were extremely well received by the students—so well received, in fact, that the faculty and students requested that we repeat the course."

For inservice teachers, reflective teaching is attractive because, as Applegate (1982) noted, "Teachers want to improve their teaching. They want to have time to think about what they do, why they do it, and what else they could do to help their students to learn" (p. 1).

Following the use of reflective teaching in a graduate course at the University of Dayton, teachers commented as follows:

> It opens up a new way for teachers to evaluate their teaching strategies as well as discover new ones.
>
> It is a valuable process because it forces you to think critically about what you have done.
>
> It gives one an opportunity to think deeply about what is actually happening when one teaches.

In other words, teachers have limitless opportunities to teach but few to consider teaching. Consequently, Applegate (1982) noted, "Practicing teachers have responded well to reflective teaching" (p. 3).

Thus, reflective teaching seems to satisfy the

psychological needs of prospective teachers to teach and of inservice teachers to consider their teaching. In addition, the nature of reflective teaching makes it psychologically engaging. It is real teaching. It is role taking, not role playing. Participants do not pretend; they *are* teachers and learners. Being human, both wish to achieve: Teachers want to help learners achieve and be satisfied, and learners want to learn. Because reflective teaching is public, there is an added incentive to do well.

The nature of reflective teaching contributes in yet another way to its psychological attractiveness. Reflective teaching is a social activity, and because humankind is by nature gregarious, engagement in this group endeavor satisfies the common need for social and intellectual interaction.

An Effective Form of Laboratory Experience

As mentioned above, reflective teaching is a role-taking activity. The participants actually are teachers and learners who are seriously trying to do their best. However, the teaching and the learning do not take place in regular classrooms; they occur in controlled laboratory settings. Thus, reflective teaching may be described as a concrete or first-hand teaching experience occurring in a context that is a model of reality. That context may be a college classroom or a staff development setting in a school or a teacher center. Other controls are associated with this instructional alternative: The lesson must be brief, about 15 minutes; the content of the lesson and the domain of learning are prescribed; learner achievement and satisfaction are the objectives of instruction; and, most important,

thoughtful, directed consideration of teaching and learning is required.

Real teaching in a controlled laboratory setting has long been a goal of preservice teacher education, and, increasingly, it is being acknowledged as beneficial in inservice settings. The call for laboratory experiences in teacher preparation goes back at least to Dewey (1904). He suggested five stages of teaching experience. The fourth, before "practice teaching," should provide prospective teachers with an opportunity to teach with the expectation that they "act upon their own intellectual initiative"—that is, that they teach as they wish, but discuss the "results obtained" with "persons more expert" (p. 27). The work of the expert

> should go to directing or getting the student to judge his own work critically, to find out for himself in what respects he has succeeded and in what failed, and to find the profitable reasons for both success and failure. (p. 27)

Criticism, if any,

> should be directed to making the professional student thoughtful about his work in the light of principles rather than to induce in him a recognition that certain special methods are good [or bad]. (p. 28)

More recently, Nolan (1982), in words reminiscent of Dewey, called for controlled laboratory experiences designed to foster reflective criticism and thus to enable the prospective teacher to become a more thoughtful and alert student of teaching.

Confirmation that well-planned laboratory experiences are beneficial is found in the

standards of both the National Council for Accreditation of Teacher Education (1985) and the National Association of State Directors of Teacher Education and Certification (1986). Additionally, the report of the American Association of Colleges for Teacher Education's respected Bicentennial Commission (Howsam, Corrigan, Denemark, & Nash, 1976) specified the need for laboratory work:

> The teacher education classroom should be a laboratory for the study and development of teaching knowledge and skills. This laboratory should be expanded to include instructional procedures such as microteaching, simulation, modeling, and demonstration. These procedures help students to confront a controlled reality . . . until they attain adequate levels of skill and confidence. When students do encounter the complexity of a regular classroom, they will have experienced a planned series of teaching acts in a minimally threatening environment, with immediate feedback and experienced supervision. (p. 93)

Scannell et al. (1983) have also made a strong case for preservice laboratory teaching, explicitly calling for the use of reflective teaching. As noted earlier, Feiman-Nemser and Buchmann (1983) have recommended that school districts cause inservice teachers to study teaching practice together. Silberman (1971) and others have concurred.

A half-dozen specific, observable benefits of reflective teaching as a form of laboratory experience are as follows:

1. Participants try out their own teaching styles and instructional methods.

2. Participants are reminded that two important outcomes of teaching are learning and satisfaction.
3. Participants, especially inservice teachers, are reminded of what it is like to be a learner.
4. Participants find out the extent to which learners learn and the degree to which learners are satisfied.
5. Participants come to appreciate and understand the complexities of teaching and learning.
6. Participants see the value of applying what they know about teaching and learning during the act of teaching.

Economy

Historically, because teacher education has been poorly supported relative to other fields, approaches to improving it have been inexpensive, and they will continue to be. Clearly, reflective teaching is not costly. It does not require special facilities or equipment. Anyone desiring to use this psychologically engaging form of laboratory experience can do so at no extra cost.

Other economic benefits deserve recognition. First, reflective teaching is not labor-intensive. One college instructor or staff developer can engage several groups of teachers and learners in teaching at the same time and accomplish significant results within an hour or slightly longer.

In summary, reflective teaching has major benefits. Foremost among them is the encouragement it offers participants to study teaching and to become life-long students of teaching. It is attractive to preservice and inservice users because it is psychologically

engaging. It appeals to teacher educators and staff developers because it provides controlled laboratory experiences that are extremely economical.

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5 Uses and Potential Uses of Reflective Teaching

Reflective teaching was originally developed to provide a form of on-campus laboratory teaching experience for preservice teachers, and it has seen extensive use with this population. It has also been employed in staff development with inservice teachers; in the preparation of supervisors of instruction and lay religious educators; in the training of government, business, and industry personnel; and in research on teaching.

Use in Preservice Teacher Education

In introduction to education classes, reflective teaching is used to familiarize novices with the role and functions of teaching. It helps answer questions such as, What do teachers do? What is teaching like? It is used in early experience courses for similar reasons but also as a form of experiential learning in which novices are encouraged to explore the personal meaning of teaching and the choice of teaching as a career.

Faculty teaching courses in humanistic and behavioral studies or foundations of education, who are often roundly criticized for their failure to address events of educational significance and to involve themselves and their students in educational practice, increasingly are drawn to reflective teaching. Holton (1984) has described how and why he uses reflective teaching as an experience to "support the notion that teaching is a liberating activity." He calls reflective teaching

"a sort of centerpiece for [a] foundations course because it supports assumptions that we hold about the content of such a course":

1. Teaching is not simply technique. Experience in Reflective Teaching demonstrates that a given manner of proceeding works differently with different learners and with different teachers. It becomes clear that thoughtful, reflective consideration by which the teacher attempts to reconstruct experience is a more sensible approach than one which emphasizes learning a "dictionary of behaviors." The premium is on active, pragmatic intelligence.
2. Facts and data are important but they matter as they help us to make sense out of our experience. Reflective Teaching demands that the facts be attended to while at the same time demonstrating that these facts hold different meanings in different contexts.
3. We are dealing with people and human events at one time. Our power to generalize must refer back to that central fact. "In general, we may generalize" so long as we concentrate on the human event in its fullness and detail. Our generalization must come out of the fullest possible realization of the event. Reflective Teaching aims at what Barzun, in another context, calls "the imagination of the real!"
4. . . . the most efficient and reasonable way to describe what we are doing is the unadorned English language. Language provides the proper degree of precision for our purposes. It exercises the students' ability to use that language with precision. (pp. 8-9)

Most often reflective teaching is used in courses on teaching and learning such as Elementary Curriculum and Methods, Secondary Curriculum and Methods, Principles of Teaching, Teaching Strategies, or Instruction. That use is understandable because novices most often explore teaching and its complexities in such courses. Moreover, the standards of the National Council for Accreditation of Teacher Education (1985) call for courses in teaching and learning theory that are accompanied by laboratory and clinical experiences.

Instructors in methods of teaching particular subject matter also have incorporated reflective teaching into their courses. Judith Grosenick, at the University of Missouri, uses the available reflective teaching lessons (RTLs) (Cruickshank et al., 1981) in a course in special education. Some faculty members have created their own RTLs to relate the content to the curriculum: for example, Richard Wolfson, for industrial arts and technical education at Montclair State College, New Jersey; Penny Reighart, for home economics education at The Ohio State University; and Jerry Peters and Gary Moore, for agriculture education at Purdue University. If an instructor follows this practice, he or she should do so with caution because the content may take on particular or special importance and reduce both the time available for, and the interest in, reflecting on teaching and learning.

Faculty in programs outside colleges of education who prepare their students to be instructors also report using reflective teaching. Among them are trainers of nurses and allied health professionals such as occupational therapists.

Further, reflective teaching has been used to complement the teaching of educational psychology. At Wittenberg University in Springfield, Ohio, for example, students first learn theoretical knowledge about motivation and learning and then see how well they can apply that knowledge in their teaching.

Student-teaching seminar leaders such as Thomas Rosenbrough and his colleagues at Trevecca Nazarene College in Nashville, Tennessee, employ reflective teaching to provide a common, shared experience that helps participants probe uncommon experiences in their regular classrooms, as well as the deeper, personal meanings of teaching and being a teacher. At the University of Dayton, graduate courses designed to improve teaching practice employ reflective teaching.

Use in Staff Development with Inservice Teachers

The use of reflective teaching has spread to schools and teacher centers. It is the subject and the content of both short- and long-term teacher development programs. In half- and full-day workshops held by schools and school districts, reflective teaching is used to get teachers talking about teaching and learning. Phi Delta Kappa, responding to requests from its members, has sponsored over 30 reflective teaching workshops in the United States, Canada, and Australia. Some school districts have used reflective teaching on an extended basis to aid marginal teachers. Finally, teacher centers have introduced teachers to reflective teaching. Applegate (1982), a center director, has chronicled her experience.

The National Institute of Education-sponsored Institute for Research on Teaching has cited reflective teaching as one of "four alternative inservice activities that encourage teachers to *think about* what they do—to analyze and understand classroom life" (Shalaway, 1981, p. 3). A related development at the Institute for Research on Teaching is the work of Frederick Erickson and his colleagues (Eaton, 1984). These educators are providing teachers with inservice time to reflect on their teaching ("The working lives of teachers leave little time for reflection" —Eaton, 1984, p. 2) and opportunities for them to make explicit what they know about teaching ("What teachers know is often implicit, just below the edge of conscious awareness," p. 2).

Use in the Preparation of Supervisors of Instruction

The primary task of supervisors of instruction is to create conditions in which teachers can become vigorous investigators of the thinking and action that motivate and define their teaching. Thus, cooperating teachers, college supervisors of student teachers, and supervisors of inservice teachers must prompt clients to consider how and why they are doing what they are doing. Unfortunately some supervisors do not enjoy this, nor are they very good at it. The main reasons are probably a lack of good models and a lack of controlled practice.

Reflective teaching provides both a model for helping teachers consider their teaching actions and the consequences of those actions, and an opportunity to practice instructional supervision in a laboratory setting. This is accomplished by

modifying the reflective teaching process so that a participant (not the designated teacher) functions as an instructional supervisor. The supervisor observes the teaching and thereafter engages the designated teacher in reflection using a modification of the questions in Chapter 2, Figures 5 and 6.

Among those using reflective teaching in the preparation of supervisors of instruction are Roger Anderson at the University of Wisconsin–Eau Claire and Robert MacNaughton at Cleveland State University. The process could well be put to use in the preparation of cooperating teachers.

Use in the Preparation of Lay Religious Educators

Churches depend greatly on lay people to give religious instruction to the young. Volunteers normally are not prepared as teachers and can encounter significant difficulties in teaching. Reflective teaching provides them with a modicum of teaching practice and an opportunity to think about teaching. Several Catholic dioceses in Ohio hold workshops for this purpose.

Use in the Training of Government, Business, and Industry Personnel

If reflective teaching can improve teaching in educational settings, surely it has potential in other settings. Sande Lehrer in the U. S. General Accounting Office in Washington uses it in her Train the Trainers workshop, in which she attempts to prepare line managers to deliver supervisory and managerial courses. She wrote, "It was helpful and was received positively by the participants" (personal correspondence, February

16, 1983). Margaret Thoms at Franklin University reported a very positive response to reflective teaching from trainers representing real estate, business administration, banking, and communications (personal communication, March 11, 1985).

Use in Research on Teaching

Until the advent of reflective teaching, scholars interested in the study of teaching did not have an on-campus laboratory setting in which teaching could be controlled and observed and its qualitative and quantitative dimensions described and investigated. Such is no longer the case. At The Ohio State University, for example, and elsewhere, reflective teaching has permitted the study of teacher clarity and its relationship to student achievement and satisfaction (Hines, Cruickshank, & Kennedy, 1985). More attention is given to the research potential of reflective teaching in the next chapter.

Miscellaneous Potential Uses

Finally, reflective teaching can also be employed in the following ways:

1. In admission to preservice programs, applicants can be asked to teach one or more RTLs, and the data from the experience can be used as a means to assess teaching aptitude. Logically, such data should prove to be more predictive of success in teaching than current indicators, such as grade-point averages, interview data, and achievement test scores.
2. For graduation or certification, prospective teachers can be required to demonstrate that when they teach, learners learn and are satisfied and, more important, that they have

developed the capacity to reflect on their teaching. Reflective teaching provides evidence of such performance.

3. As part of the hiring process, local education agencies can ask applicants to teach an RTL so that a work sample, or evidence of teaching ability, is part of the data collected and used.
4. In preparing beginning university teachers and teaching associates, faculty can involve them in workshops in which they use reflective teaching to practice and consider their own teaching (Armaline, 1985).

In summary, reflective teaching is obviously being used in a variety of ways to enhance preservice and inservice teacher education. Further, it is considered beneficial in the preparation of supervisors of instruction and lay religious educators; in the training of government, business, and industry personnel; and in research on teaching. Potential uses exist in admission to teacher education, graduation or certification, and the preparation of university teachers.

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6 Research on and with Reflective Teaching

There are two conclusions from research on teaching . . . which I am prepared to defend. The first is: When teachers or college students have a chance to study their own teaching behavior thoughtfully and have access to opportunities for practice and appropriate subsequent analysis, the odds are very high that they will change or modify their patterns of teaching behavior. (Flanders, 1976, p. 170)

Reflective teaching is a unique vehicle because it can serve two broad purposes. First, as an instructional alternative in teacher preservice and inservice education, it can improve the process of learning to teach. Second, as a research tool, it can provide a work sample of what teachers do under controlled conditions.

Given these broad purposes or uses to which reflective teaching can be applied, two lines of inquiry seem advisable. The first is research *on* reflective teaching. The intent is to determine how well, if at all, it does what it is supposed to do as an instructional alternative. Related research could determine what else it does. The second line of inquiry is research *with* reflective teaching. Here the intent is to observe and analyze teaching during reflective teaching so as to learn about teaching and to judge the impact of the professional program on it.

Does Reflective Teaching Do What It Is Supposed To Do?

At the outset of its development, the design specifications for reflective teaching were clear, but its beneficial outcomes were uncertain. With regard to the latter, Cruickshank, Kennedy, Williams, Holton, and Fay (1981) investigated some early hoped-for results from the use of the procedure with preservice teachers. The subjects were 101 juniors and seniors enrolled in four sections of a general methods course for prospective secondary school teachers. Fifty-five students comprising two of the sections received six hours of exposure to reflective teaching. Each taught one RTL and served as a learner five times. Forty-six students making up the other two sections served as a control group. They participated in six hours of group discussion on professionalism and teacher certification. The study used a classic two-group, pretest-posttest design augmented by two nested variables: (a) sections, two of which were nested within each treatment group, and (b) small groups, four or five of which were nested within sections. Section instructors were graduate teaching assistants familiar with reflective teaching.

Three hypotheses were examined: (a) that reflective teaching would promote preservice teachers' ability to think and hence to express themselves in a complex manner when discussing the act of teaching and the process of learning, (b) that positive change would occur in students' attitudes toward student teaching, and (c) that subjects would identify a greater number and a wider variety of variables extant during teaching. The first hypothesis, the principal claim of reflective teaching, was supported. The

reflective teaching participants produced proportionally more analytical statements about teaching ($p < .01$) and about learning ($p < .05$) than the control group members did. The second hypothesis was modestly supported. The reflective teaching participants were significantly different from the control group members on three semantic differential items making up a cluster. They were "less frightened," "less anxious," and "more confident" about commencing student teaching. The third hypothesis was not supported. The reflective teaching participants did not identify a significantly greater number nor a wider variety of variables operative during teaching than the control group members did.

The study was marred by some procedural and contextual factors: The amount of the treatment (i.e., exposure to reflective teaching) was reduced from 12 to 6 hours; the number of sections used was reduced from eight to four; the study was conducted on a remote part of the campus in order to record events on television; and some instructors evidenced a notable lack of enthusiasm toward participating in the research.

Further studies in which the treatment type and length are varied would be useful. Such studies should investigate some of the same hypotheses, but also other ones such as those that can be extrapolated from Chapter 3.

In a second study of reflective teaching, Beeler, Kayser, Matzner, and Saltmarsh (1985) introduced the process as part of the educational psychology course at Eastern Illinois University. Their report did not describe the methodology but made the following observations:

- Optimal group size for the teaching and reflection is from five to eight, including the designated teacher.
- Groups should be balanced in terms of people who are likely to participate actively in the discussion of teaching and learning.
- People chosen to perform first as designated teachers should be predictably forthcoming.
- The first RTL chosen for use should be an enjoyable one.
- Small-group reflection sessions should not be led by the designated teacher and should not be monitored by the instructor.
- Membership in the small groups should be rotated.
- Teaching groups should be separated as much as possible to provide privacy.
- Use of videotape replay of the RTLs with the designated teachers and the instructor results in the former "providing their own critiques."
- "RT is an enjoyable experience for most."
- Immediate, nonthreatening feedback is highly beneficial.
- Most designated teachers practice their lessons with friends and roommates.
- Participants preferred to perform and demonstrate teaching rather than write about it.

A third reported evaluation of reflective teaching was undertaken in Australia at the Newcastle College of Advanced Education (McKee, 1986), where experimentation was conducted to determine whether this procedure was "more successful than microteaching as a means of developing and refining basic skills in lesson preparation, delivery and evaluation." Once more, the study's methodology was not reported, although four "refinements" to reflective

teaching were mentioned, including (a) videotaping all lessons and small-group feedback sessions so that designated teachers could review them in order to see how teaching peers had approached the same task and with what results; (b) causing learners to rate their designated teacher using a Peer Teaching Appraisal Guide; (c) causing designated teachers, while reviewing their own videotape, to complete a Teaching Observation Schedule; and (d) providing "a summary of the main discoveries about teaching and learning to all participants after each reflective teaching session."

Among other observations, the report of the "formal evaluation" noted the following:

- There was "a high level of student satisfaction with the reflective teaching sessions."
- Reflective teaching is a vehicle for developing and refining basic skills in lesson preparation, delivery, and evaluation.
- "Reflective teaching allows the lecturer to choose the type of knowledge to be taught (e.g., concepts, principles) and to focus on the analysis of the structure of that knowledge and the appropriate teaching skills which should accompany it. Thus lecturers have control over the behaviours teachers are required to engage in and can specify the learning domain in which the learning falls."
- "Integration of Theory and Practice of Teaching with Educational Psychology and Communication Skills [courses] has been facilitated."
- "Teachers can compare the results of different decisions about how to accomplish the same task."
- Teachers become aware that a variety of

instructional decisions are possible and a variety of resources can be used. (pp. 3-4)

What Else Needs to Be Known About Reflective Teaching?

Numerous unanswered questions about reflective teaching remain. Among them is a basic one: What indeed are the beneficial outcomes of being provided with an opportunity to teach and then reflect on the teaching? Said another way, What is learned about teaching from teaching and reflection? Are participants wiser as operationally defined in Chapter 3? Are they able to ask themselves fundamental questions, such as, What am I doing and why? Do they indeed ask such questions? In this regard, perhaps two kinds of studies are needed. The first would assume in advance, as did that of Cruickshank, Kennedy, Williams, Holton, & Fay (1981), that certain benefits accrue from participation in reflective teaching. The second should describe and analyze the behavior of participants during reflective teaching to gain insights into the outcomes and the benefits.

Other unanswered questions include the following:

- What procedures optimize learning during reflective teaching? What attributes of RTLs, reflective sessions, the instructor, and other factors contribute most to generating wisdom about teaching? Armaline (1982) has presented a list of testable propositions that partially address these questions. Among them are these:

  Proposition 3—To the extent that the prescribed questions for small group discussions

are followed, meaningful teaching and learning statements will be generated.

Proposition 4—Data about [learner] achievement create conditions that, when present [and used], are positively correlated with generating statements regarding teaching effectiveness.

Proposition 5—Data about [learner] satisfaction create conditions that, when present [and used], are positively correlated with generating statements regarding learner satisfaction.

Proposition 7—To the extent that multiple comparisons of teaching and learning are made (i.e., more designated teachers are involved), then a greater number and variety of variables regarding teaching and learning will be generated in discussion.

Proposition 9—To the extent that the instructor is on task (follows or attends to issues in the large group discussion) and is able to probe and integrate initial student statements, the effects of Reflective Teaching will increase. (pp. 5-8)

- Are certain participants more likely than others to benefit from reflective teaching? Perhaps some will benefit and others will not. Two related observations follow. The first is from Jung (1971, 1931):

> I was struck by the fact that many people habitually do more thinking than others, and accordingly give more weight to thought when making decisions. They also use their thinking in order to understand the world and adapt to it, and whatever happens to them is subjected to consideration and reflection or at least subordinated to some principle sanctioned by

> thought. Other people conspicuously neglect thinking in favor of emotional factors, that is, feeling. (p. 537)

The second observation, surprisingly, is from Jackson's (1968) study of outstanding teachers:

> When called upon to justify their professional decisions, my informants often declared their classroom behavior was based more on impulse and feeling than on reflection and thought. (p. 145)

These observations raise an interesting related query: Are teachers among the people described by Jung who "conspicuously neglect thinking in favor of emotional factors, that is, feeling"? If so, why, and what are the consequences?[4] Regardless, perhaps there is value in making as many current and future teachers as possible less visceral and more reasoning in relation to teaching and learning. If so, the secret is to determine which ones have such an aptitude.

- Where in the preservice or inservice program is reflective teaching most beneficial? When

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[4]It may be that the fast pace and the complexity of classroom life attract teachers who have a proclivity to behave more extemporaneously. Given the social unrest of the '60s and '70s that spilled over into schools and classrooms, to survive, perhaps teachers have had to recognize and "go with the flow." Perhaps they have had to take on more of the behaviors normally associated with guidance counselors and social workers. This is not to say that the latter groups are not rational, only that they are more involved with and responsive to affect. A related thought is that people who have been attracted to teaching in recent years may be different types than their predecessors.

is the teachable moment? To what extent does this vary according to the conceptual development of the teacher? To what extent should it precede or follow other professional work?

- How much reflective teaching is requisite, and should it be spaced or massed?

- To what extent do the benefits of engagement in reflective teaching transfer to teaching in natural classrooms? Once the beneficial outcomes of engagement in reflective teaching are known and the best regimen for its use is established, efforts can be made to see if such benefits carry over. Assuming that teacher wisdom is enhanced, does it persist after RTLs cease? Research seems to indicate that permanent advantage results only when and if reflection is encouraged and rewarded in a new setting. However, if reflection on teaching became a habit during preservice teaching, it might be difficult to break. A habit at some times becomes, as psychologists say, functionally autonomous behavior; that is, it no longer requires reinforcement. The subject is "hooked."

Related inquiries could determine whether performance in reflective teaching predicts success in natural classrooms as well as common standards do—recommendations made by college instructors, the ubiquitous grade-point average, etc.

How Could Reflective Teaching Be Useful in the Study of Teaching?

Reflective teaching very closely approximates a natural teaching-learning situation. Although the teaching is scaled down (the lessons are brief, the learners few), all the variables are present

(Gall, 1977): a teacher, a teaching method, curriculum objectives, curriculum materials, learners, an instructional setting, and tests. Consequently, reflective teaching serves not only as an end in itself, but as a means to an end—a laboratory for the study of teaching. Beyond the ability to control the aforementioned classroom variables, the investigator can also control time and use randomization.

The availability of reflective teaching as a laboratory for the study of teaching permits attention to such questions as these:

1. What specifically do teachers do that is alike and different when given a teaching assignment? How and why do they come to do these things?
2. What do teachers do that is *associated with* learner achievement and satisfaction?
3. What do teachers do that *contributes to* learner achievement and satisfaction?

A limited number of studies have already used reflective teaching as a laboratory for studying teaching. In these, teacher clarity was a variable of interest. Behaviors related to teacher clarity were first identified by Cruickshank, Myers, and Moenjak (1975) and later refined by Bush, Kennedy, and Cruickshank (1977) and Kennedy, Cruickshank, Bush, and Myers (1978). Hines (1981) and Hines, Cruickshank, and Kennedy (1985) found that a number of specific teacher-clarity behaviors were strongly associated with learner achievement and satisfaction. Using reflective teaching, Williams (1983) found teacher clarity to be stable or consistent when teachers taught the same material to the same students at different times, the same material to different students at different times, different material to

the same students at different times, and different material to different students at different times.

How Could Reflective Teaching Be Useful in the Study of Teacher Education?

Cruickshank, Haefele, Kennedy, Loadman, and Williams conducted a study at The Ohio State University in 1984 to determine the impact of the four-year-old undergraduate program. Specifically they investigated whether senior students completing the program differed significantly from freshman students in terms of their general knowledge as measured by the American College Test (ACT), their professional education knowledge as measured by the National Teacher Examination (NTE), their grade-point average, and their clarity in teaching. In regard to the latter variable, reflective teaching was used as the research vehicle. Groups of freshmen and seniors taught RTLs that were televised and later analyzed with regard to teacher clarity.

In summary, reflective teaching offers potential for research on itself as an instructional alternative of the laboratory genre available for use in preservice and inservice teacher preparation. Its transfer effect is also of considerable interest. Quite unintentionally but fortuitously, reflective teaching also provides a vehicle for the study of teaching and the study of the impact of the professional program.

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McKee, A. (March, 1986) *Reflective teaching as a strategy in TAFE teacher education.* Paper presented at the South Pacific Association of Teacher Education Conference, Perth, Australia.

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Additional Resources

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Cruickshank, D. (1986, Winter). Critical thinking skills for teachers. *Teacher Education Quarterly, 13*(1), 82-89.

Cruickshank, D. (1986, Winter). Helping teachers achieve wisdom. *Texas Tech Journal of Education, 13*(1), 21-27.

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Korthagen, F. A. J. (1985, September-October). Reflective teaching and preservice teacher education in the Netherlands. *Journal of Teacher Education, 36*(5), 11-15.

Seven chapters: IRT research featured in handbook on teaching. (1985, Fall). *Communication Quarterly* (newsletter of the Institute for Research on Teaching, *8*(1).

Tom, A. R. (1985, September-October). Inquiry into inquiry-oriented teacher education. *Journal of Teacher Education, 36*(5), 35-44.

Appendix A

Resource Materials

Clearly, numerous materials are available that support the use of reflective teaching with preservice and inservice teachers. As noted in the text, they include resources intended to provide an orientation to what reflective teaching is, the reflective teaching materials themselves, and responses of users to the instructional alternative.

There are three main sources of such materials: Phi Delta Kappa, The Ohio State University Department of Photography and Cinema, and college and university libraries.

Phi Delta Kappa publishes *Reflective Teaching: Instructor's Manual* (Cruickshank et al., 1981). The *Manual* is designed to be self-instructional and includes all information necessary to acquaint its readers with reflective teaching so that they may implement the approach with ease. It is divided into four major sections. The table of contents follows as Figure 7. The 8-1/2 x 11-inch looseleaf notebook contains not only directions for instructors but also the *Participant's Guide* for use by preservice and inservice teachers. The latter item is also available separately. Both the *Instructor's Manual* and the *Participant's Guide* are revisions of the reflective teaching materials first produced and field-tested under grants from the Exxon Education Foundation (Cruickshank, 1980). Figure 8 reproduces the list of published reflective teaching lessons from the *Instructor's Manual*.

***Figure 7. Table of Contents of* Reflective Teaching: Instructor's Manual**

I. Introduction

What Reflective Teaching in preservice teacher education is like: A scenario
Introduction to Reflective Teaching
Reflective Teaching: A short history of its beginnings
Uses of Reflective Teaching
Rationale for increased use of on-campus laboratory and clinical teaching experience
A brief comparison with other forms of on-campus laboratory experiences
Advantages of Reflective Teaching

II. Instructions

Reflective Teaching in action
A description of Reflective Teaching
Reflective Teaching Lessons
The role of the instructor
The role of the designated teacher
The role of the learner
The reflective session
Questions for small group discussion
Questions for large group discussion
An example of a large group discussion
Current uses of Reflective Teaching
Research on Reflective Teaching
Factors or variables that might influence pupil learning and/or satisfaction
What we seem to know about teacher effectiveness that might assist us during Reflective Teaching
Commonly asked questions on the use of Reflective Teaching

III. Reflective Teaching Lessons

How to write Reflective Teaching Lessons
Thirty-six Reflective Teaching Lessons classified according to domains of learning, etc.
The thirty-six Reflective Teaching Lessons presented in alphabetical order by the title

IV. Participant's Guide. Topics with asterisks are also found in the Instructor's Manual.

Introduction
Learning about teaching
What Reflective Teaching is like
Sample Reflective Teaching Lesson: The Teacher Problems Task
Your role as a designated teacher during Reflective Teaching*
Your role as a learner during Reflective Teaching*
The reflective session*
Questions for small group discussion*
What seems to be learned or reconfirmed about teaching from Reflective Teaching
What we seem to know about teacher effectiveness that might assist us during Reflective Teaching*
Factors or variables that may influence pupil learning and/or satisfaction*

Reflective Teaching: Instructor's Manual is available for $27.50, the *Participant's Guide* for $2.00, from Phi Delta Kappa, Eighth and Union, P.O. Box 789, Bloomington, Indiana 47402.

The Ohio State University, under a second grant from the Exxon Education Foundation, produced and makes available a 28-minute, color, semi-documentary film, *Reflective Teaching*. The film begins as an instructor introduces the idea of reflective teaching to his education class and assigns three students (designated teachers) a reflective teaching lesson (RTL) to teach at the next class meeting. After class he meets briefly with the designated teachers to determine if they understand the task and to provide them assurances. Next, Mary, a designated teacher, is shown as she prepares the assigned reflective teaching lesson. As an aside, the film shows the reflective teaching *Participant's Guide* and

Figure 8. ***Thirty-Six Published Reflective Teaching Lessons Classified According to (a) the Content of the RTL, (b) the Domain of Learning in Which Teaching Will Take Place, and (c) the Likely Behaviors Teachers Will Have to Demonstrate.***

	Content		*Learning Domain*			*Teaching Behavior*						
RTL Title	Content-Free or Unrelated to Professional Education	Content Related to Professional Education	Cognitive	Psychomotor	Affective	Demonstrate	Describe	Designate	Explain	Foster Attitude Change	Stimulate	Practice Problem Solving
1. Acrostic Task	x		x				x				x	
2. Arrowhead Task	x		x					x				
3. Block Diagram Task	x		x				x					
4. Bowline Task	x			x		x						
5. Castle Task	x		x					x				
6. Chemopatetics Task	x		x			x	x					
7. Chisanbop Task	x			x								
8. Cienthew Task	x		x				x	x				
9. Coded Message Task	x		x									x
10. Deciphering Task	x		x					x				
11. Disc. in Elem. Sch. Task		x	x					x				
12. Drug Task	x		x				x					
13. Effective Schools Task		x	x					x				
14. Freckles and Film Task	x		x			x						x
15. Good Teacher Task		x	x					x				
16. Honesty Task	x				x					x		
17. Jealous Offspring Task	x		x									x
18. John Dewey Task		x	x				x					
19. Kachuan Language Task	x				x					x		
20. Magic Squares Task	x		x		x	x						
21. Manual Alphabet Task	x		x		x							
22. Mem. and Forget.Task	x		x				x	x	x			
23. Modular Arithmetic Task	x		x			x	x					
24. Multiplication Task	x		x			x	x					
25. Origami Task	x			x		x						
26. Paper Clip Task	x		x								x	
27. Plant Distribution Task	x		x						x			
28. Redification Task	x		x				x					
29. Rules/Laws Task	x		x						x			
30. Semaphore Task	x			x		x						
31. Spelling Demon Task	x		x					x				
32. Stan Laurel Task	x			x		x						
33. Survivor Task	x		x				x	x				
34. Time Task	x				x					x		
35. Tobacco Task	x				x					x		
36. Vocabulary Task	x		x				x	x				

Note: From *Reflective Teaching: Instructor's Manual* by D. Cruickshank, J. Holton, D. Fay, J. Williams, J. Kennedy, B. Myers, and J. Hough, 1981, Bloomington, IN: Phi Delta Kappa.

Instructor's Manual, explaining their contents and use.

The next sequence takes place back in the college classroom. The instructor recaps the purpose of reflective teaching and its procedures. Then the class is divided into subgroups of about six and assigned to teaching stations around the room. One designated teacher is also assigned to each station. The designated teachers, on a signal from the instructor, begin teaching concurrently. After 15 minutes they test the learners and then administer the Learner Satisfaction Form. Armed with the shared experience and knowledge of learner achievement and satisfaction, the designated teachers lead a discussion guided by questions contained in the *Participant's Guide*. Then the instructor reconvenes the whole class and leads it in discussion guided by questions from the *Instructor's Manual*. The questions focus attention on the different teaching methods used, their results, and the ultimate question, What was learned about teaching and learning?

The majority of the film shows how the above sequence of activities unfolds. The camera moves back and forth among Mary's, Jennifer's, and Dan's learning groups and later illuminates the guided small-group and whole-class inquiries into teaching and learning.

The portrayal is honest. The method and the success of the three designated teachers vary widely. The guided inquiry into teaching and learning touches such issues and topics as teaching styles, use of visual aids, teacher enthusiasm, ethics of teaching, attitudes, and time management.

The film is available for three-day rental at $35 or

for purchase at $280 from the Film Distribution Supervisor, The Ohio State University Department of Photography and Cinema, 156 West 19th Avenue, Columbus, Ohio 43210-1183 (614/422-5966).

A number of articles on reflective teaching have been published and presentations made at national professional meetings. An annotated bibliography of these follows. Many of these materials are published in periodicals normally available in college and university libraries.

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Annotated Bibliography

Applegate, J. (1982, April). Reflective teaching and staff development: A partnership for professional growth. *The Developer,* pp. 1-8.

This article offers a detailed description of how reflective teaching was used with a group of 18 teachers who met for six consecutive weeks. The author supports the use of reflective teaching in staff development because it

satisfies the needs of adult learners and contains the attributes of successful staff development practices.

Armaline, W. (1982). *Reflective teaching: Some theoretical considerations.* Unpublished manuscript, The Ohio State University, Columbus.

The paper describes the reflective teaching process and then presents 12 propositions that, if taken into account by reflective teaching users, should enhance the teaching-learning experience. Each proposition seems amenable to testing as a hypothesis.

Armaline, W. (1985, April). *Use of clinical experiences in the analysis and improvement of teaching associate instruction.* Paper presented at the American Educational Research Association Meeting, Chicago.

The paper describes how microteaching and reflective teaching are employed in workshops for college instructors.

Cruickshank, D. (1980, September). *Reflective teaching: The Ohio State University/Exxon Education Project final report for Phase I: Design, development, and field-testing of reflective teaching.* Unpublished manuscript, The Ohio State University, Columbus.

This voluminous work is a detailed account of the design, development, and field-testing of reflective teaching. Appended are the instruments used in testing.

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education and research on teaching. In *Action in teacher education: A responsible program for the eighties* (pp. 16-23). Columbus, OH: Confederation of Teacher Education Organizations.

The chapter describes reflective teaching and its benefits, and offers numerous questions amenable to research.

Cruickshank, D. (1982). *George C. Gund Foundation-sponsored dissemination of reflective teaching to Ohio teacher educators: Final report.* Unpublished manuscript, The Ohio State University, Columbus.

The George C. Gund Foundation, wanting teacher educators throughout Ohio to have knowledge of and skill in reflective teaching, supported four one-and-a-half day workshops attended by 25 or more professionals. The workshops are described and evaluated.

Cruickshank, D. (1984). Research potential for reflective teaching. *Mid-Western Educational Researcher*, 5(2), 1-6.

The article suggests that reflective teaching has high potential for research both as an end in itself (the study of reflective teaching as a process) and as a means to an end (the use of reflective teaching as a vehicle to study the act and the outcomes of teaching).

Cruickshank, D. (1985, June). Uses and benefits of reflective teaching. *Phi Delta Kappan*, 66, 704-706.

Uses and benefits of reflective teaching in preservice and inservice teacher education,

graduate education, research, etc., are presented.

Cruickshank, D., & Applegate, J. (1981, April). Reflective Teaching as a strategy for teacher growth. *Educational Leadership, 38,* 553-554.

This article introduces reflective teaching and describes its use with inservice middle-school teachers.

Cruickshank, D., & Clausen, C. (1983). *Reflective teaching* [Film]. Columbus, OH: The Ohio State University, Department of Photography and Cinema.

This 28-minute semidocumentary film shows how reflective teaching is used with preservice teachers at The Ohio State University.

Cruickshank, D., Kennedy, J., Williams, J., Holton, J., & Fay, D. (1981, September-October). Evaluation of reflective teaching outcomes. *Journal of Educational Research, 75*(1), 26-32.

A summative evaluation of reflective teaching is reported.

Cruickshank, D., Holton, J., Fay, D., Williams, J., Kennedy, J., Myers, B., & Hough, J. (1981). *Reflective teaching: Instructor's manual* and *Participant's guide.* Bloomington, IN: Phi Delta Kappa.

The *Instructor's Manual* contains all of the information and materials needed to implement reflective teaching. The *Participant's Guide* is useful as a way of introducing people to the idea. It also contains a sample reflective teaching lesson and questions intended to

cause participants to reflect on teaching and learning.

Dubs, Rolf. (1981, Jahrang). Reflective teaching: Eine Neue Form des Lehrerverhalten-strainings. *Schweizerische Zeitschrift Fur Kaufmannisches Bildungswesen*, 3(4), 93-105.

The author studied reflective teaching in the United States and then wrote about it for his Central European colleagues.

Gore, J. M. (1987). Reflecting on reflective teaching. *Journal of Teacher Education, 38* (2), pp. 33-39.

Gore presents a critical analysis of the concept and use of reflective teaching. Her views may be of particular interest because she takes issue with Cruickshank's notion of reflective teaching and presents ideas for modifying the scheme that she contends would improve it.

Holton, J. (1984, April). *Reflective teaching and the foundations of education course at Morehead State University*. Paper presented at the American Educational Research Association Meeting, New Orleans, LA.

Holton describes how he uses reflective teaching to improve teaching in a foundations of education course.

Langrehr, J. (1981). Reflective teaching really is fun. *South Pacific Journal of Teacher Education, 10*(1), 66-68.

Langrehr describes reflective teaching for his colleagues in Australia after his study of it in the United States.

Peters, J. (1980). *The effects of laboratory teaching experience (microteaching and reflective teaching) in an introductory teacher education course on student views of themselves as teachers and their perceptions of teaching.* Unpublished doctoral dissertation, The Ohio State University, Columbus.

Peters found that preservice teachers were more satisfied using reflective teaching than using microteaching.

Shalaway, L. (1981, Winter). Alternative inservices: Thinking about teaching *Communication Quarterly* (newsletter of the Institute for Research on Teaching), *4*(2), 3.

The author recommends reflective teaching as one of "four alternative inservice activities that encourage teachers to think about what they do." Each alternative is described. They are recommended as among "the most effective, yet inexpensive to implement."

Sullivan, R. (1984). Reflective teaching and the teacher education curriculum. *The Tower, 10,* 6-19.

This article describes reflective teaching and its benefits for preservice and inservice teachers, teacher educators, and teacher education institutions.

Appendix B

Sample Reflective Teaching Lessons

The following samples represent content-free reflective teaching lessons—one each from the cognitive, psychomotor, and affective domains.

The Magic Squares Task

Read each section carefully.

Description of your Reflective Teaching task. You are one of several members of your college class or school faculty chosen to teach this short lesson to a small group of your peers. The exercise is intended to provide an opportunity to experience teaching and then to reflect on the shared teaching-learning experience. Plan to teach it in such a way that you believe both learning and satisfaction will result.

Your lesson will be taught on _____.

Introduction to the lesson. Teachers describe—that is, they tell about something. Teachers also demonstrate—that is, they show how to do

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From *Reflective Teaching: Instructor's Manual by* D. Cruickshank, J. Holton, D. Fay, J. Williams, J. Kennedy, B. Myers, and J. Hough, 1981, Bloomington, IN: Phi Delta Kappa. The ideas for the Magic Squares Task and the Time Task were contributed by D. Cruickshank, The Ohio State University; the idea for the Origami Task, by J. Mager, Syracuse University.

something. The following are examples of teachers describing and demonstrating behavior.

(1) An elementary teacher describes how to perform division and demonstrates by example.
(2) A chemistry teacher describes how to prepare a solution and demonstrates by example.
(3) An auto mechanics teacher describes how to change a tire and demonstrates by example.
(4) A physical education teacher describes how to do a forward roll and demonstrates by example.

Below is an objective that requires you to describe and demonstrate something to a small group of your peers. The task was selected because your success in accomplishing it probably will not be dependent on your knowledge of some academic subject or previous experience you might have had.

Your objective. Your goal is to get as many of your learners as possible to be able to correctly construct a magic square where the number of cells on each side equals seven. You will have 15 minutes in which to accomplish your objective.

Materials
(1) Magic squares (attached)
(2) Test (provided by instructor)
(3) Answer Sheet and Scoring Box (provided by instructor)
(4) Learner satisfaction forms (provided by instructor)

Special conditions and limitations. None.

Ending the lesson. Notify the instructor when your learners are ready to take the test. (You may finish early). Obtain copies of the test, scoring

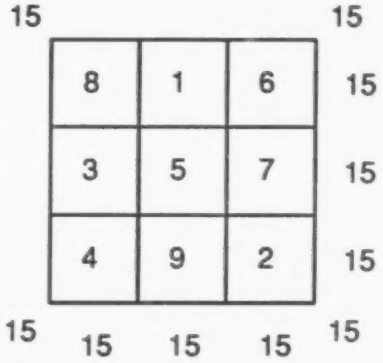
box, and learner satisfaction form. Give your learners the test, and when they have finished (no more than five minutes), read them the correct answers so that they can correct their own tests. Use the criteria given with the scoring box for scoring.

Next, pass out the learner satisfaction forms, and while they are being completed, collect the tests and record the scores in the scoring box. Return the tests and collect the learner satisfaction forms.

Begin to work through the questions for small group discussion with your learners.

Magic Squares

A magic square is one in which the columns, rows, and diagonals all add to the same number. For example, in the square below they all add to 15.



The formation of magic squares has been an amusement for centuries. They were sometimes said to possess magical properties; one particular square was inscribed on a silver plate and carried as a protection against the plague.

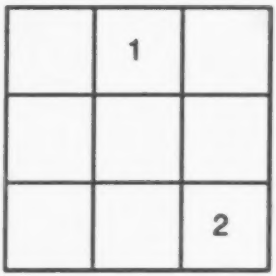
Magic squares can be constructed by trial and error, but the task is very time consuming. Thanks to a rule discovered by De La Loubere in 1693, it is possible to complete odd-numbered squares with ease. There are formulas for even-numbered squares, but they will not concern us at this state.

De La Loubere's rule may be stated as follows:

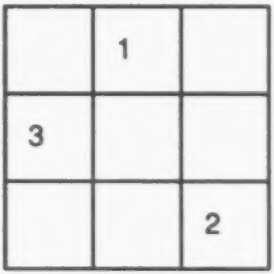
(a) Place the numeral 1 in the middle cell of the top row.

(b) Then proceed to place the successive numbers moving upwards diagonally to the right. However, if the top row is reached, one

moves to the bottom row as if it had been above the top row. Thus 2 goes to the bottom right-hand corner.



(c) If the right-hand column is reached, one moves to the left-hand column as if it had been next to the right-hand column.



Thus 3 goes to the middle left-hand cell.

(d) If, when moving diagonally, one finds another number filling a cell, then move to the cell immediately below.

	1	
3		
4		2

Thus 4 goes below the 3.

(e) When the top right corner cell is reached, place the next number directly below.

	1	6
3	5	7
4		2

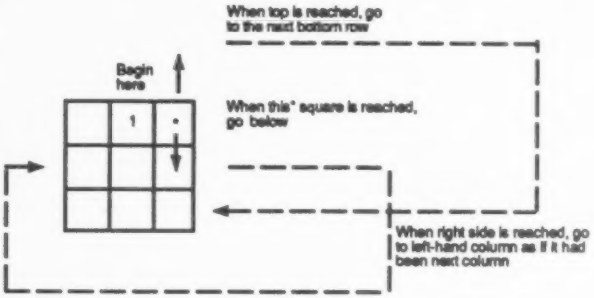
Thus 7 goes below the 6.

Now the right column is reached, so the 8 goes in the left column.

8	1	6
3	5	7
4	9	2

This reaches the top line, so the 9 goes in the bottom row.

The following summarizes the rules:


When top is reached, go to the next bottom row
Begin here
1
When this* square is reached, go below
When right side is reached, go to left-hand column as if it had been next column
Finally: When any cell is full, go directly below where the last number was placed.

Let us now apply the rule to a 5-cell square.

65					65
	17	24	1	8	15	65
	23	5	7	14	16	65
	4	6	13	20	22	65
	10	12	19	21	3	65
	11	18	25	2	9	65
65	65	65	65	65	65	65

All rows, columns, and diagonals add to 65.

Answer Sheet
The Magic Squares Task

30	39	48	1	10	19	28
38	47	7	9	18	27	29
46	6	8	17	26	35	37
5	14	16	25	34	36	45
13	15	24	33	42	44	4
21	23	32	41	43	3	12
22	31	40	49	2	11	20

Scoring Box
The Magic Squares Task

Directions. Give each learner 1 point for each number in the correct box. A perfect test score would be 49.

	Learner's Name	*Performance Score*
1.		
2.		
3.		
4.		
5.		
6.		
	Group average score (Add learners' scores and divide by number of learners.)	

The Origami Task

Read each section carefully.

Description of your Reflective Teaching task. You are one of several members of your college class or school faculty chosen to teach this short lesson to a small group of your peers. The exercise is intended to provide an opportunity to experience teaching and then to reflect on the shared teaching-learning experience. Plan to teach it in such a way that you believe both learning and satisfaction will result.

Your lesson will be taught on _____.

Introduction to the lesson. Teachers describe—that is, they tell about something. Teachers also demonstrate—that is, they show how to do something. The following are examples of teachers describing and demonstrating behavior.

(1) A health education teacher demonstrates how to give mouth-to-mouth resuscitation.
(2) A physics teacher demonstrates the phenomenon of centrifugal force.
(3) A social studies teacher engages the class in a demonstration of how a bill becomes a law.
(4) A home economics teacher demonstrates the proper way to bathe an infant.

Below is an objective that requires you to describe and demonstrate something to a small group of your peers. The task was selected because your success in accomplishing it probably will not be dependent on your knowledge of some academic subject or previous experience you might have had.

Your objective. Your goal is to get as many of your learners as possible to make a butterfly from paper using the technique of origami. You will

have 15 minutes in which to accomplish your goal.

Materials

(1) Origami (attached)
(2) Scoring Box (provided by instructor)
(3) Learner satisfaction form (provided by instructor)
(4) Light-weight, square paper for folding—enough for you and your learners (provided by you)

Special conditions and limitations. The teacher may not touch or fold a learner's paper. After teaching the technique, test the learners by having them each fold a butterfly without any help from you.

Ending the lesson. Notify the instructor when your learners are ready to take the test. (You may finish early). Obtain copies of the test, scoring box, and learner satisfaction form. Evaluate your learners' butterflies using the criteria given with the scoring box.

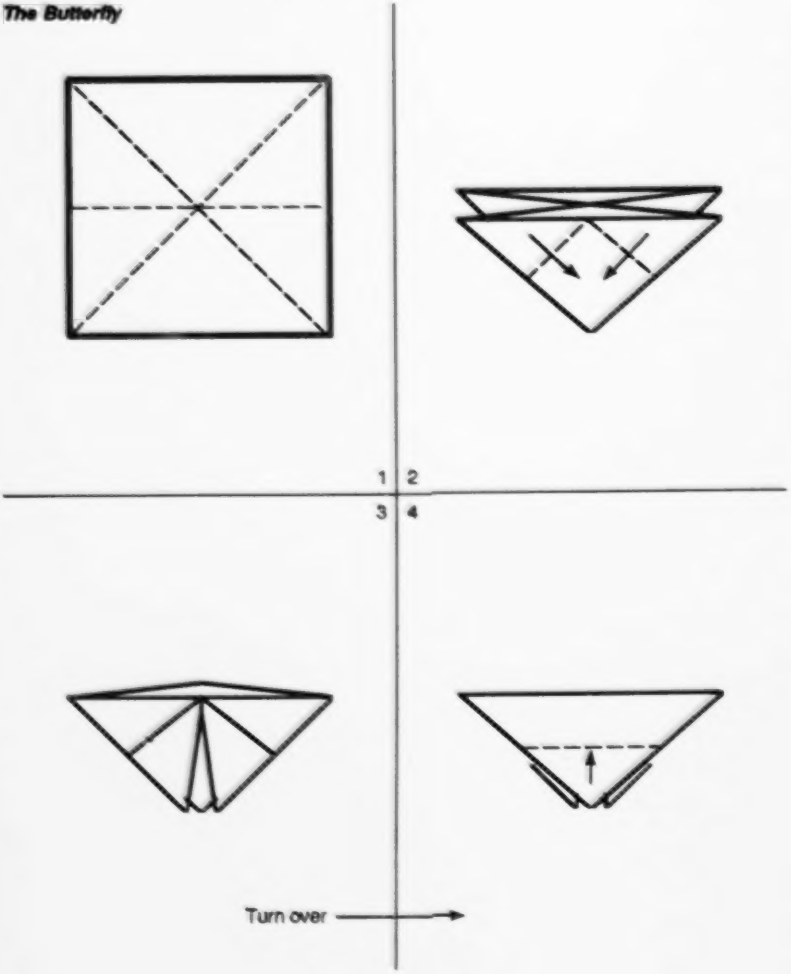
Next, pass out the learner satisfaction forms, and while they are being completed, record the ratings of the butterflies in the scoring box. Collect the learner satisfaction forms.

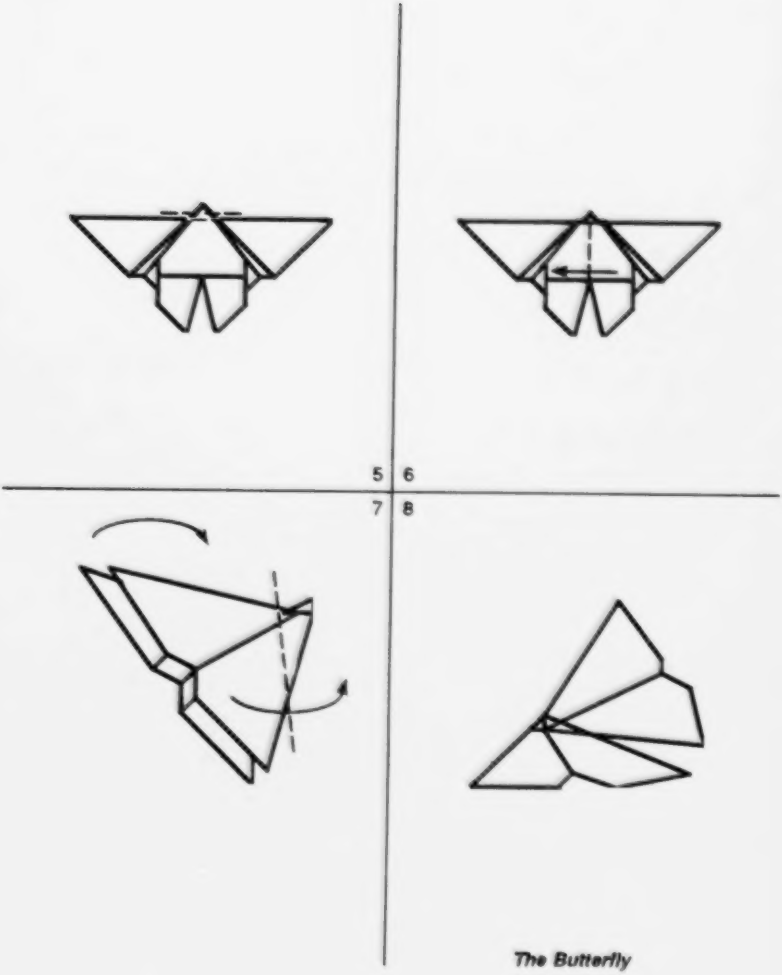
Begin to work through the questions for small group discussion with your learners.

Origami

Origami is the Japanese art of paper folding.

The Butterfly





The Butterfly

Scoring Box
The Origami Task

Directions. Give each learner's butterfly:

3 points if excellent,
2 points if satisfactory, and
1 point if unsatisfactory.

	Learner's Name	*Rating*
1.		
2.		
3.		
4.		
5.		
6.		

Average score
(Divide the total rating
score by the number of learners.) _____

The Time Task

Read each section carefully.

Description of your Reflective Teaching task. You are one of several members of your college class or school faculty chosen to teach this short lesson to a small group of your peers. The exercise is intended to provide an opportunity to experience teaching and then to reflect on the shared teaching-learning experience. Plan to teach it in such a way that you believe both learning and satisfaction will result.

Your lesson will be taught on _____.

Introduction to the lesson. Teachers foster attitude change—that is, they attempt to get students to change their minds about people, events, content to be learned, and so forth. The following are examples of teachers fostering attitude change:

(1) A social studies teacher engages the class in a discussion of the contributions of persons of a variety of national origins to present-day American culture.
(2) A foreign language teacher shows the class how learning a foreign language will be helpful in their everyday life.
(3) A home economics teacher encourages boys to consider performing home tasks associated with assuming family responsibility.

Below is an objective that requires you to foster attitude change with a small group of your peers. The task was selected because your success in accomplishing it probably will not be dependent on your knowledge of some academic subject or previous experience you might have had.

Your objective. Your goal is to get as many of

your learners as possible to change their attitude toward the Western notion of time. Specifically you should try to get your learners to disagree with the following statements, among others:

- Time is money.
- Time waits for no one.
- A stitch in time saves nine.
- Time is of the essence.

You will have 15 minutes in which to accomplish your goal.

Materials

(1) Pretest (attached)
(2) Posttest (attached)
(3) Scoring Box (attached)
(4) Learner satisfaction forms (provided by instructor)

Special conditions and limitations. Before you begin teaching, obtain copies of enough pretests for each learner. Distribute the pretests and have learners respond to it. Collect the pretests before you start.

Ending the lesson. Notify the instructor when your learners are ready to take the test. (You may finish early). Obtain copies of the posttest and the learner satisfaction form. Give your learners the posttest, and when they are finished (no more than two minutes), return their pretests and ask them to indicate any changes which they may have made from pre- to posttest.

Next, pass out the learner satisfaction forms, and while they are being completed, collect the pre- and posttests and record the scores in the scoring box. Return the pre- and posttests and collect the learner satisfaction forms.

Begin to work through the questions for small group discussion with your learners.

Pretest
The Time Task

Name _____

Following are statements about time. Rate each on the basis of whether you agree or disagree with it by placing a checkmark (√) in one column after each statement. The checkmark must be in a box and not on a line.

Statements	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*
1. Time is money.				
2. Time waits for no one.				
3. A stitch in time saves nine.				
4. Time is of the essence.				

Posttest
The Time Task

Name

Part A. Following are statements about time. Rate each on the basis of whether you agree or disagree with it by placing a checkmark (√) in one column after each statement. The checkmark must be in a box and not on a line.

Statements	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*
1. Time is money.				
2. Time waits for no one.				
3. A stitch in time saves nine.				
4. Time is of the essence.				

Part B. Do you think that your attitude toward time has been modified somewhat by this Reflective Teaching experience? (Check one box)

__ Yes
__ No

Scoring Box
The Time Task

Once your learners have completed both the pretest and the posttest, you can count how many of them changed or did not change attitudes toward each statement in the desired direction.

Note: Each row (across) in the scoring box will total your number of learners.

Statements	*Number of learners who changed their attitudes in the desired direction*	*Number of learners who did not change their attitudes in the desired direction*
1. Time is money.		
2. Time waits for no one.		
3. A stitch in time saves nine.		
4. Time is of the essence.		
Total (add down)		

From Part B on the posttest. How many of your learners felt their attitudes were moderated toward time from this experience? _____

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